REMARKS

Claims 1-20 are pending in the application. Claims 17-20 stand withdrawn from consideration. Claims 1-16 stand rejected by the Examiner. The drawings stand accepted. The Examiner's rejections are addressed below in substantially the same order as in the Office Action.

REJECTION UNDER 35 USC §112

Claims 8-11 have been rejected under 35 U.S.C. §112, second paragraph, as failing to particularly point out and distinctly claim the subject matter which Applicants regard as their invention. The Examiner urges that Claim 8 recites the limitation "an incipient drag reducer" in line 2 and infers therefrom that such limitation is already provided in line 2 of parent Claim 1.

Applicants respectfully traverse the Examiner's rejection and point out that Claim 8 cites as its limitation not the existence of the "incipient drag reducer" *per se*, but rather, the limitation that the properties of the incipient drag reducer are varied by varying the proportions, i.e., ratios, at which the components are admixed to form it. To this end Applicants have herein requested amendment of Claim 8, as well as of Claim 7, upon which Claim 8 depends, to clarify this intention. As such, the Examiner will appreciate that there is no equivalent limitation in parent Claim 1 and that, therefore, the limitation in Claim 8 is not redundant.

Applicants believe that this rejection has now been overcome and accordingly respectfully request its withdrawal.

REJECTIONS UNDER 35 USC §102

Claims 1-3, 7-9 and 12 are rejected under 35 U.S.C. §102(b) as being anticipated by Allyn (US 4,722,363, hereinafter "Allyn"). The Examiner alleges that Allyn discloses a method of introducing a drag reducer to a hydrocarbon fluid stream flowing through a pipeline [drawing reference] 11, with the method comprising admixing two

components – one from [drawing reference] 16, 20, and the other from [drawing reference] 24, 30 – wherein the drag reducer components are admixed at the site of the fluid stream at desired rates.

Applicants respectfully traverse this rejection on the basis that the Allyn invention does not disclose admixing two components of a drag reducer. The Examiner appears to have misread the description and/or drawings in Allyn and come to an incorrect conclusion as to what Allyn is doing.

To be specific, and for ease of explanation with reference to FIG. 6 of Allyn, Allyn is pumping a fluid through a main pipeline 11. However, because Allyn wishes to incorporate a drag reducing agent into this fluid, Allyn is diverting a minor portion of the pumped fluid from pipeline 11 into branch conduit 14. This fluid therefore flows toward eductor 22. In the meantime, a drag reducing agent is being pumped from source 24, through either metering pump 30 or metering valve 42, and via drag reducing additive supply conduit 26 into eductor 22, where it meets with, and is incorporated with, the diverted portion of the fluid. From thence, the fluid-with-drag-reducer continues on toward inlet conduit 68, into apparatus 28, and back into the continuation of pipeline 11 (toward the right-hand side of the drawing). Thus, the drag reducing agent used by Allyn is a single, complete "true" drag reducer prior to incorporation into any of the fluid wherein its drag reducing action is desired. It is clear from the specification as a whole that it is Allyn's intent to reduce the time during which the relatively viscous drag reducing agent is subjected to excessive shear force that may degrade it; and/or to increase the life of injection or metering pumps that are required to get the pressure of injection up sufficiently to enable such injection into the main pipeline without undesirable flow disruption; and/or to optimize the location of injection relative to the inner wall surface of the pipeline. It is not Allyn's intent, nor does his invention operate, to form a drag reducing agent that is "incipient".

In marked contract, it is, indeed, the Applicants' intent to form, first, an "incipient" drag reducing agent. As defined, an "incipient drag reducer" is one in which the two or more components are admixed, but they do not become a "drag reducer" *per se* until an additional condition or force is applied – and that additional condition or force is met or

exerted at the point when, or after, the components admixture is injected into the pipeline of moving fluid. See Applicants' specification at paragraphs [0015] and [0016]. Thus, the "incipient drag reducer" does not become a "drag reducer" until subjected to, e.g., certain levels of shear forces; or certain conditions of temperature sufficient to initiate or facilitate a reaction or other transformation, e.g., polymerization; or certain ratios that facilitate or induce reaction; or intimate contact of certain selections of constituents that make up or are included in the components; or combinations thereof; or the like. See, for example, Applicants' specification at paragraphs [0014]; [0016]; [0019]; and [0020]. Because the true "drag reducer" thus does not exist *as such* during an implied "induction period," i.e., a period enabling the incipient drag reducer to be injected into the pipeline in a relatively less viscous, i.e., "incipient" condition, problems such as wear to pumps and meters and degradation of its ability to reduce drag are mitigated. Thus, Applicants' invention may be said, arguably, to offer some of the benefits of the Allyn invention. However, Applicants' invention clearly does not employ the means of the Allyn invention, and thus cannot fairly be said to be anticipated thereby.

It is, of course, well-recognized in the law that anticipation, under 35 USC §102(b), requires that each and every element of an Applicant's proposed claim be found in the anticipatory reference. In the present situation, however, this does not occur. Specifically, in Applicants' Claim 1 as presently constructed, the scope is defined as **"[a] method for introducing a drag reducer into a fluid stream comprising admixing the components of a drag reducer to form an incipient drag reducer and injecting the incipient drag reducer into the fluid stream under conditions such that the incipient drag reducer forms a drag reducer in the fluid stream."** Applicants believe that, with the amendments requested by this Response, it is now clearer that their invention is, first of all, to a method for introducing a drag reducer into a fluid stream. That method includes essentially three parts: (1) admixing the components; (2) injecting the admixture into the stream; and (3) seeing that, once in the stream, the admixture transforms into a drag reducer. It is therefore implied that, with regard to part (3), the "conditions" may be those that are intentionally applied to the

admixture of components, and/or those that are inherent to the nature of the fluid stream. Such intentional and/or inherent conditions in the fluid stream may include any that, in effect, make the admixed components operable as a drag reducer, such as conditions of time, shear, temperature, relative flow rates, reactivity of components, etc., as already mentioned hereinabove.

In contrast, Allyn does not admix "components" of anything, but rather simply mixes part of the fluid with an additive. Allyn does not inject "incipient drag reducer" or any equivalent thereof, but rather injects the part of the fluid, that contains the additive, into the rest of the fluid. Finally, Allyn is not concerned with formation of a drag reducer UPON or AFTER injection, because the Allyn invention uses an already-formed-and-fully-complete additive (the drag reducer) at the very start, PRIOR TO injection. The drag reducer does not change its nature in any way over the period encompassing prior to, upon and subsequent to, injection.

As to the other claims included in this rejection (Claims 2, 3, 7-9 and 12), Applicants respectfully note that each of these is a dependent claim that is ultimately dependent upon Applicants' Claim 1. Because of the strong patentability of Claim 1 as argued herein, Applicants assert herein only that such dependent claims are clearly and at least derivatively patentable in view of Claim 1, making further discussion as to independent patentability of those claims unnecessary at this time.

In view, then, of the very important differences between the Allyn invention and Applicants' invention, as discussed hereinabove, Applicants respectfully assert that this rejection has now been overcome. Accordingly, they respectfully request its withdrawal.

REJECTIONS UNDER 35 USC §103

Claims 4-6 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Allyn, as applied to Claims 1-3, 7-9 and 12 hereinabove, and further in view of Inomata et al. (US 2002/0008049 A1, hereinafter "Inomata"). The Examiner urges that Allyn discloses the claimed invention with the exception of explicitly disclosing the hydrocarbon stream to be the product of passage through a desalter and/or a dehydrator, while Inomata discloses, at paragraph [0002], that it is common practice in

the art to provide pretreatments such as dehydration and desalting for the purpose of obtaining the separation of crude oil into desired component fractions.

The Applicants respectfully traverse this rejection on the basis that the Allyn invention is, for the reasons discussed in detail hereinabove, clearly very different from the Applicants' invention, and that combination of Inomata therewith, whether or not such is permissible, does essentially nothing to produce, in the view of those skilled in the art, the Applicants' invention. Applicants have, indeed, included claims drawn specifically to application of their invention to hydrocarbon streams that have been passed through dehydrators and/or desalters, since such streams are more likely to be treated with drag reducers in general. However, combining Inomata, as a secondary reference, with Allyn, as a primary reference, does not result in something that is anywhere near equivalent to Applicants' invention. Instead, Allyn and Inomata would have to be fairly said to, at most, teach that Inomata's stream fractions can be treated by separating off a portion of such streams to form a sidestream, injecting a fully-prepared and formed drag reducer therein, and then routing the sidestream back into the mainstream, to ensure that the injection of the drag reducer does not unduly disrupt flow of the mainstream. Again, as already noted with respect to Allyn in Applicants' response to the §102(b) rejection discussed hereinabove, Inomata does not teach or suggest preparation of an "incipient drag reducer" that is not a true drag reducer until acted on by some condition that occurs upon or after injection in the fluid stream.

In view of the above, Applicants believe that this rejection has now been overcome, and its withdrawal is now respectfully requested.

* * *

Claims 1-10 have been rejected under 35 USC §103(a) as being unpatentable over Allyn as applied to Claims 1-3, 7-9 and 12 above, and further in view of Babenko (US 2002/0002994 A1, hereinafter "Babenko"). The Examiner asserts that Babenko discloses that it is known in the art to vary the injection rate of the drag reducer (paragraph [0042]) based upon the property of the fluid stream in order to obtain effective drag reduction. From this the Examiner concludes that it would have been obvious to one of ordinary skill in the art at the time the invention was made to have

provided in Allyn [the concept of] varying the injection rate of the drag reducer, based on a property of the fluid stream, for the purpose of obtaining effective drag reduction, as evident from Babenko.

Applicants respectfully traverse this rejection, again on the basis that the secondary reference (Babenko) does not supply the deficiencies, or overcome the differences, already discussed hereinabove with respect to the Allyn invention. Further with respect to Babenko, even assuming for the sake of argument that Babenko does disclose the concept of varying the injection rate of the drag reducer relative to the fluid stream, Babenko still does not do what Applicants do, which is to vary the ratios of the drag reducer components in order to ultimately obtain specific properties in the drag reducer that are customized according to the properties of the fluid stream (see Applicants' Claim 10). This is very different from varying the injection rate, which is the basis for this rejection as asserted by the Examiner.

As with Inomata, Applicants assert that the inherent and already-supported patentability of their independent Claim 1, upon which Claims 10 and 11 ultimately depend, provides at least derivative patentability for Claims 10 and 11, and that further discussion of the potentially independent patentability of these claims, upon reformation, is inappropriate or unnecessary at this time. Accordingly, Applicants believe that this rejection has now been overcome and its withdrawal is respectfully requested.

* * *

Claims 13-14 have been rejected under 35 USC §103(a) as being unpatentable over Allyn as applied to Claims 1-3, 7-9 and 12 above, and further in view of Thompson et al. (US 6,849,581, hereinafter "Thompson"). The Examiner asserts that Thompson discloses that it is known in the art to provide a drag reducer made from two components – a carboxylic acid and one or more metal salts of carboxylic acids (which here is taken to include both sets of drag reducer compositions recited in Claims 13 and 14) for the purpose of obtaining desired drag reduction. From this the Examiner concludes that it would have been obvious for one of ordinary skill in the art at the time the invention was made to have provided in Allyn a drag reducer comprising these

components for the purpose of obtaining desired drag reduction, as recognized by Thompson.

As with Inomata, the Thompson reference cannot supply the deficiencies, or overcome the differences, encountered in Allyn. Applicants' Claims 13 and 14 ultimately depend upon Claim 1, and as such represent an at least derivatively patentable invention. Thus, if the combinations represented by Claims 13 and 14 do not form an incipient drag reducer, which is then formed into a [true] drag reducer upon or after injection into the fluid stream by conditions encountered therein, such is not within the scope of Claims 13 and 14. Applicants have not been able to locate any mention in the very voluminous disclosure of Thompson which provides teaching of this sequence, and if Applicants have overlooked such, it is respectfully requested that the Examiner point out such teaching with greater specificity.

In view of the above remarks, and the Applicants' discussion of the deficiencies of the Allyn reference in general throughout this Response, Applicants believe that the requirements of 103(a) have not been met and that Applicants' invention cannot therefore fairly be said to be obvious in view of the combination of Allyn and Thompson as recited by the Examiner. Accordingly, it is believed that this reference has now been overcome, and its withdrawal is respectfully requested.

* * *

Claims 15 and 16 have been rejected under 35 USC §103(a) as being obvious over Allyn. The Examiner asserts that to provide admixing of the components at either sub-ambient or supra-ambient temperatures is considered to be a design expedient over those features disclosed in Allyn in that it neither provides any new and/or unexpected result, nor solves any stated problem.

Applicants respectfully traverse this rejection on the ground that Allyn never addresses or implies that two or more components may be combined to form an incipient drag reducer, as defined, and then injected into a fluid stream to, either upon or after injection, be subjected to conditions that will transform the incipient drag reducer into a [true] drag reducer. Allyn addresses simply ensuring that an additive such as a drag reducer can be introduced into a fluid stream effectively and with a minimization of

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flow disruption, equipment wear, etc., by injecting it first into a sidestream, then flowing the sidestream into the mainstream. Allyn neither teaches nor suggests that at any time the drag reducing additive employed therein comprises at least two components or subparts in general. One of ordinary skill in the art at the time the invention was made would not be led by Allyn to see or infer that there would be benefits both to forming a precursor to a drag reducer, i.e., an incipient drag reducer, and to being able to customize both the period of induction and the properties of the drag reducer via appropriate selections of components and ratios for forming the incipient drag reducer. This is the essence of Applicants' teachings, and as such, it represents a very significant jump in the approach to drag reduction problems when compared with that of Allyn. Applicants have, with their invention, made a real contribution to the art with their new approach.

In view of the above, it is believed that this rejection has now been overcome. Accordingly, Applicants now respectfully request withdrawal thereof.

* * *

Applicants acknowledge the Examiner's statement that the prior art made of record and not relied upon is considered pertinent to Applicants' disclosure.

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CONCLUSION

For all the foregoing reasons, Applicants submit that the application is now in condition for allowance, and such is respectfully requested. No fee is believed due for this paper. The Commissioner is hereby authorized to charge any additional fees or credit any overpayment to Deposit Account No. 02-0429.

Respectfully submitted,

Dated: August 18, 2006

Barbara J. Tribble
Registration No. 31,670
Madan, Mossman & Sriram, P.C.
2603 Augusta, Suite 700
Houston, Texas 77057
Telephone: (713) 266-1130
Facsimile: (713) 266-8510

CERTIFICATE OF FACSIMILE TRANSMISSION

I do hereby certify that this correspondence is being transmitted via facsimile, to the Commissioner for Patents, Examiner Ramesh Krishnamurthy, facsimile no. (571) 273-8300, on this 18th day of August, 2006.

Beth Pearson-Naul

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